

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

July 21, 2010

TO: Internal File

THRU: Daron Haddock, Team Lead

FROM: James D. Smith, Environmental Scientist III *JS* 8/3/10

RE: Winter Quarter Ventilation Facility (WQVF), Canyon Fuel Company LLC, Skyline Mine, C/0007/0005, Task ID #3549

SUMMARY:

Canyon Fuel Company, LLC (CFC) is planning to construct a vertical ventilation shaft, a sloped mine portal, and an emergency escape shaft at the Winter Quarters Ventilation Facility (WQVF) in Winter Quarters Canyon to facilitate expansion of the Skyline Mine into coal located north of the canyon. The surface pad for these additional entries will be constructed about 2 miles southwest of the town of Scofield in Carbon County, Utah and approximately ½ mile west of the historic Winter Quarters town site. The WQVF will add approximately 7.93 acres to the Skyline Mine permit area.

To prevent adverse hydrologic impacts to Winter Quarters Creek and the surrounding area, the mine will construct a runoff sediment control system that will include a sedimentation pond and ASCAs. To minimize the probability of water entering the mine, the pad for the shafts and slope is to be located, at a minimum, approximately 30 feet north of Winter Quarters Creek and 20 feet higher in elevation. The mine openings will be up-dip of the mine workings, minimizing concern of gravity discharge during the operation of the mine. Outfall -004 was added to the Skyline Mine UPDES permit in December 2009 to accommodate discharging water to Winter Quarters Creek both from the sedimentation pond and potential future mine water discharge.

The Division recently revised the interpretation of the definition of "permit area" as applying to surface disturbances only; other areas where resources are or reasonably could be expected to be adversely impacted by coal mining and reclamation operations are adjacent areas. Because of this change, CFC revised all maps in the MRP to show the permit area as the disturbed area and to show designated, defined adjacent areas.

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The amendment includes the "Winter Quarters Ventilation Shaft Pad Runoff and Sediment Control Design Report" by EarthFax Engineering and a report by Clement Drilling & Geophysical, Inc. that summarizes the methodology and results of the seismic refraction testing conducted at the WQVF site.

CFC submitted an application for the WQVF in October 2009 (Task ID # 3416). The Permittee subsequently withdrew the application in November 2009, and the Division returned the application package in November 2009. The Permittee resubmitted the application on January 11, 2010 (Task ID # 3463). The Division sent the Permittee a TA and an Application Denial letter with a list of deficiencies on February 24, 2010, and the Permittee responded on March 23, 2010 (Task ID # 3504). The Division sent another Denial Letter with deficiencies on May 17, 2010 and the Permittee submitted their response on June 6, 2010; this Tech Memo (Task ID # 3549) is a review of hydrology and related issues addressed in that June 6 submittal.

No deficiencies have been identified in this technical review. It is recommended that this amendment be approved.

TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

HYDROLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 701.5, 784.14; R645-100-200, -301-724.

Analysis:

Sampling and Analysis

The Division's directive Tech-004 recommends a full year of baseline hydrology data be submitted with an application. The Permittee first submitted the application for the WQVF in October 2009, subsequently withdrew it, and then resubmitted it in January 2010. The Division's database contains data (including baseline parameters) for the 4th Quarter 2009 at CS-24, located on Winter Quarters Creek below the WQVF site. For WQ-1, the Permittee has uploaded Operational parameters to the Division's database for the 2nd, 3rd, 4th Quarters of 2008 and the 2nd Quarter 2009, but only field parameters have been reported since (3rd and 4th Quarters of 2009). The Permittee reported depth at 08-5-1 in 4th Quarter 2009, with no subsequent

measurements reported. Due to the potentially critical health and safety issues and time constraints involved with this application, the Division is willing to be flexible in applying the Tech-004 guidelines, however, as a condition of receiving approval for this application, the Permittee needs to provide additional baseline water quality analyses for WQ1-1 and CS-24 (no samples are collected from these sites during the first quarter, so no new data have been added to the database since this was first discussed in the May 17, 2010 Deficiency Letter; it is to be hoped that the Second Quarter 2010 data will include the baseline parameters).

Findings:

The Permittee has met the requirements of the Coal Mining Rules; however, the Permittee is hereby reminded to analyze water samples collected at WQ1-1 and CS-24 for baseline water quality parameters until construction of the WQVF begins.

OPERATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

Diversions: Miscellaneous Flows

Section 4.5 of Vol. 5 - Section 24; *Winter Quarters Ventilation Shaft Pad Runoff and Sediment Control Design Report* states that "The ASCA [39] catch basin will convey runoff into an 18-inch culvert under the access road and into a riprap pad along the north side of the existing road south of the access road. The riprap pad will dissipate flow and allow the runoff to flow along its natural path across the existing road. From the south side of the existing road runoff will flow west along the north side of the topsoil berm toward Winter Quarters Creek." One of the deficiencies listed in the May 17, 2010 Denial Letter required the Permittee to provide a design for this flowpath that would prevent additional contributions of sediment to the stream and minimize erosion. In response, the Permittee has not modified the design but has added, in Attachment A of Vol. 5 - Section 24, HydroCAD and Flowmaster modeling for the riprap pad at the culvert outlet, the gravel-surfaced road, and the designed ditch along the Topsoil Pile berm. The modeling results indicate predicted velocities along the flowpath from the culvert outlet to

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Winter Quarters Creek should be non-erosive and prevent additional contributions of sediment to the stream.

The May 17 deficiency also identified similar shortcomings with the designs for the outflows from the sedimentation pond spillways, topsoil pile sediment trap, and the Upper Road culvert. The Permittee has modified the designs for these structures.

- The result of the Permittee's HydroCAD and FlowMaster modeling of the Sediment Pond outfall is in Attachment A, Vol. 5 - Section 24. Plate 3.2.4-3D and Vol. 5, Section 24, Subsection 4.2 describe the addition of 12 to 24-inch boulders on top of a 5-ft by 5-ft riprap pad to spread out the flow. The secondary spillway, which will be riprapped, will also flow onto this pad. Final predicted velocity of flow from the pad is under 2 fps.
- The berm along the bottom of the topsoil stockpile is designed for total retention of runoff from a 10- year, 24-hour storm (ASCA 37); the silt-fence spillway at the catchment basin, located at the lowest elevation (Drawing 3.2.4-3A), will be approximately 2.5 ft high. Should a larger event produce enough runoff to overtop the spillway, the Permittee has planned for a 6-foot wide by 3-foot long riprap pad on the discharge side (Vol. 5, Section 24, Subsections 4.2 and 4.3; Drawing 3.2.4-3F) to prevent erosion, including undercutting of the spillway.
- The riprap pad at the outfall of the Upper Road culvert is now designed to be 10 ft wide by 25 ft long, whereas the previous design was for 5 ft wide by 10 ft long. In addition, 12 to 24-inch boulders are to be imbedded within the riprap in the top 10 ft of the pad, immediately downstream of the outfall (Vol. 5, Section 24, Subsection 4.4; Drawings 3.2.4-3E and 4.4.2-3A). The HydroCAD and Flowmaster modeling in Attachment A of Vol. 5 - Section 24 show that the water should be coming off the riprap pad at non-erosive velocity, approximately 1.25 fps.

The Permittee has summarized peak flow velocities and riprap needs for some of the structures, calculated with HydroCAD (version 9.1) and FlowMaster (version 6.0), in Vol. 5, Section 24, Table 4.

Stream Buffer Zones

The Permittee proposes to disturb land within 100 feet in Winter Quarters Creek, a perennial stream; however, there will be no diversion of the creek, nor need for a stream alteration permit because the Permittee proposes to keep all disturbance a minimum of two stream widths away from the stream. Buffer Zone signage is discussed in Section 3.2.7. The undisturbed upper-road ditch, located uphill of the pad site, is to be improved to minimize drainage reporting to the site. The sedimentation pond has been designed to treat storm-water runoff. ASCAs are to treat water leaving disturbed areas, especially the pad area before the pond

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is fully operational and the topsoil pile. The operation of the WQVF as shown on the submitted plans is not likely to cause or contribute to the violation of applicable water quality standards or adversely affect water quantity and quality or other environmental resources of Winter Quarters Creek.

The berm around the topsoil stockpile (ASCA 37) is designed for total retention of runoff from a 10- year, 24-hour storm. Should a larger event overtop the berm spillway, the Permittee has planned for a 6-foot wide by 3-foot long riprap pad on the discharge side (Vol. 5, Section 24, Subsections 4.2 and 4.3; Drawing 3.2.4-3F) to prevent erosion, including undercutting of the spillway.

All water leaving the main pad area will be treated by the sedimentation pond. A UPDES water discharge point was added to the Skyline Mine water discharge permit in December 2009 to accommodate discharging water to Winter Quarters Creek both from the sedimentation pond and potential future mine water discharge. Silt fence provides sediment control for the runoff from ASCA 38, which includes the outslope of the pad and the sedimentation pond.

Wattles placed around the inlet of a catch basin will treat discharge from ASCA 39. From the catch basin, water will flow through a culvert under the road and discharge onto a riprap pad, which will dissipate the flow. The Permittee has furnished additional information on planned runoff control for the flow over the approximately 150-foot path between the riprap pad at the outfall from the ASCA 39 culvert and Winter Quarters Creek, and for the flows leaving the riprap pads at the sedimentation pond spillways, the topsoil pile sediment trap, and the Upper Road culvert.

Findings:

The proposed plan meets the requirements of the Utah Coal Mining Rules. The Division finds that the proposed construction, operation, and reclamation of the WQVF facility is not likely to cause or contribute to the violation of applicable water quality standards or adversely affect the water quantity and quality or other environmental resources of Winter Quarters Creek.

RECOMMENDATIONS:

The Division should approve this amendment.